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(54) **Laminated products of olefinic thermoplastic elastomer and constructional gaskets**

(57) The present invention relates to a laminate comprising an olefinic thermoplastic elastomer which comprises:

(a) a substratum layer comprising an olefinic thermoplastic elastomer composition(A) having the following characteristics ① to ③ :

①

$$9 \leq Y - 0.43X \leq 27 \quad (1)$$

wherein X denotes the JIS A-hardness value (a dimensionless value) of the olefinic thermoplastic elastomer composition determined according to the prescription of JIS K6301 and Y represents the compression set value (expressed by %) of the olefinic thermoplastic elastomer composition deter-

mined according to the prescription of JIS K6301 under a condition of 70 °C and 22 hours,

② a tensile strength value in the range from 5 to 30 MPa determined according to the prescription of JIS K6301 and

③ an elongation set value of 18% or less determined according to the prescription of JIS K6301, and

(b) a surface skin layer comprising an ultra high molecular weight polyolefin composition(B) having an intrinsic viscosity  $[\eta]$  measured in decalin at 135 °C in the range from 3.5 to 8.3 dl/g; and a constructional gasket comprising the olefinic thermoplastic elastomer composition(A).

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# PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention shall be considered, for the purposes of subsequent proceedings, as the European search report

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| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                        |                                  |                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Citation of document with indication, where appropriate, of relevant passages                                                                                                                                                                                                                                          | Relevant to claim                | CLASSIFICATION OF THE APPLICATION (Int.Cl.7)    |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | US 5 378 543 A (MURATA KAZUHIKO ET AL)<br>3 January 1995 (1995-01-03)<br>* figures 1,3 *<br>* column 1, line 1-18 *<br>* column 2, line 55 - column 3, line 28 *<br>* column 6, line 46 - column 7, line 45 *<br>* column 8, line 6-17 *<br>* column 14, line 40 - column 15, line 13 *<br>* examples 1,17,19 *<br>--- | 1,3-5,8,<br>12                   | B32B27/32<br>C09K3/10<br>F16J15/14<br>B60J10/00 |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | PATENT ABSTRACTS OF JAPAN<br>vol. 018, no. 443 (C-1239),<br>18 August 1994 (1994-08-18)<br>& JP 06 136349 A (MITSUI PETROCHEM IND LTD), 17 May 1994 (1994-05-17)<br>* abstract *<br>---                                                                                                                                | 1,3-5,9,<br>10,12                |                                                 |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | PATENT ABSTRACTS OF JAPAN<br>vol. 018, no. 526 (M-1683),<br>5 October 1994 (1994-10-05)<br>& JP 06 182951 A (MITSUI PETROCHEM IND LTD), 5 July 1994 (1994-07-05)<br>* abstract *<br>---                                                                                                                                | 1,3,4,6,<br>9,10,12              |                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                        |                                  | TECHNICAL FIELDS<br>SEARCHED (Int.Cl.7)         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                        |                                  | B32B<br>F16J<br>C09K<br>B60J                    |
| <b>INCOMPLETE SEARCH</b><br>The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.<br>Claims searched completely :<br><br>Claims searched incompletely :<br><br>Claims not searched :<br><br>Reason for the limitation of the search:<br>see sheet C                                                            |                                                                                                                                                                                                                                                                                                                        |                                  |                                                 |
| Place of search                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                        | Date of completion of the search | Examiner                                        |
| THE HAGUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                        | 19 July 2002                     | Stabel, A                                       |
| CATEGORY OF CITED DOCUMENTS<br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document<br>T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>& : member of the same patent family, corresponding document |                                                                                                                                                                                                                                                                                                                        |                                  |                                                 |

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INCOMPLETE SEARCH  
SHEET C

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Claim(s) searched completely:  
2-9 11-13

Claim(s) searched incompletely:  
1 10

Reason for the limitation of the search:

Present claims 1 and 10 relate to a product/compound defined by reference to desirable ranges and relations between characteristics or properties, namely JIS A-hardness, compression set value, tensile strength, elongation set value and intrinsic viscosity.

The claims cover all products/compounds falling into these ranges and complying with the relations between these characteristics or properties, whereas the application provides support within the meaning of Article 84 EPC and/or disclosure within the meaning of Article 83 EPC for only a very limited number of such products/compounds.

In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 84 EPC). An attempt is made to define the product/compound by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to the products/compounds disclosed in the dependent claims 2-9, 11-13 and the examples.



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| DOCUMENTS CONSIDERED TO BE RELEVANT |                                                                                                                                                                                                           |                   | CLASSIFICATION OF THE APPLICATION (Int.Cl.7) |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------------------------------------|
| Category                            | Citation of document with indication, where appropriate, of relevant passages                                                                                                                             | Relevant to claim |                                              |
| A                                   | EP 0 472 268 A (GENCORP INC)<br>26 February 1992 (1992-02-26)<br>* page 2, line 1-5 *<br>* page 6, line 31 - page 7, line 53 *<br>* page 8, line 30 - page 9, line 7 *<br>* examples *<br>* tables I-VI * | 1-8,12            |                                              |
| A                                   | -----<br>PATENT ABSTRACTS OF JAPAN<br>vol. 014, no. 287 (M-0988),<br>21 June 1990 (1990-06-21)<br>& JP 02 089639 A (TOYODA GOSEI CO LTD),<br>29 March 1990 (1990-03-29)<br>* abstract *                   | 1-8,12            |                                              |
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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
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19-07-2002

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